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# The relationships between adult students' achievement goal orientations, self-defined course goals, course evaluations, and performance

## Abstract

*This study examined how students' achievement goal orientations and self-reported course-specific goals are related to each other and how they predict students' perceptions of their learning environment and course performance. Participants were 88 students of the Finnish National Defense University.*

*Based on goal orientation profiles, we identified four groups of students, which differed in students' evaluations of most aspects of learning environment. Mastery-oriented and success-oriented students were most positive in their evaluations compared to avoidance-oriented students. Minor differences were also observed in examination scores; the success-oriented students scored highest.*

*Students' open answers referred most often to mastery-intrinsic goals and goals of gaining instrumental qualification for working career. Goal orientation profiles were weakly related to open-ended answers: the avoidance-oriented students mentioned mastery-intrinsic goals less frequently and success-oriented students mentioned mastery-intrinsic goals marginally more frequently than could be expected by chance alone. With regard to course evaluations and open answers, the presence of mastery-intrinsic goals and mastery-extrinsic goals were associated with higher course evaluations, whereas the presence of work-avoidance goals was associated with lower course evaluations.*

*The relationships between motivation, performance, and students' evaluations of learning and instruction are discussed.*

## Keywords

*Motivation; Achievement goal orientation; Learning environment*

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# Zusammenhänge zwischen Zielorientierungen, selbstdefinierten kursbezogenen Zielen und Bewertungen sowie der Leistung von Studierenden


## Zusammenfassung

*In dieser Studie wurde der Zusammenhang zwischen den Zielorientierungen und den selbstberichteten kursspezifischen Zielen von 88 Studierenden der Finnish National Defense University untersucht. Darüber hinaus wurde deren Zusammenspiel zur Prädiktion der subjektiven Bewertung der Lernumgebung und der Leistung der Studierenden innerhalb des Kurses überprüft.*

*Auf Basis von Zielorientierungsprofilen wurden vier Gruppen von Studierenden identifiziert, die sich hinsichtlich nahezu aller Aspekte zur Bewertung der Lernumgebung unterschieden: Lernzielorientierte sowie leistungszielorientierte Studierende zeigten die positivsten Bewertungen im Vergleich zu den vermeidungsorientierten Studierenden. Geringere Unterschiede zeigten sich auch in den Prüfungsergebnissen, wobei die Leistungszielorientierten die höchste Punktezahl erreichten.*

*Die freien Antworten der Studierenden bezogen sich meist auf intrinsische Lernziele sowie Ziele, die sich auf den Erwerb von Qualifikationen für die berufliche Karriere beziehen.*

*Die Zielprofile wiesen nur einen schwachen Zusammenhang mit den freien Antworten auf: Vermeidungsorientierte Studierende berichteten intrinsische Lernziele seltener, während leistungszielorientierte Studierende intrinsische Lernziele marginal häufiger berichteten als rein zufällig zu erwarten wäre. Sowohl intrinsische als auch extrinsische Ziele korrelierten mit höheren Kursbewertungen, wohingegen Arbeitsvermeidungsziele mit niedrigeren Bewertungen einhergingen.*

*Die Zusammenhänge zwischen Motivation, Leistung und der subjektiven Bewertung von Lernen und Unterricht werden diskutiert.*



## Schlagworte

*Motivation; Zielorientierung; Lernumgebung*


## 1. Introduction

Achievement goal research is one of the most prominent areas of recent research on student motivation. Findings suggest that the goals students strive for influence their approach to and behaviour in achievement situations as well as the consequences of such behaviour. Research has provided rich evidence of the correlates and consequences of both general and situation specific goal orientations in terms of student engagement, learning outcomes, and affective experiences. It seems that many studies are using surveys on the extent to which students strive for different achievement-related goals. Only a minority of studies have focused on students'

own open descriptions of the goals they try to achieve in different achievement situations and contexts, and hardly any study has tried to link these two different inquiries to each other or to other relevant educational outcomes. To address this limitation, our study aims to examine how students' achievement goal orientations (as self-reported in a survey) and course goals (as described in an open ended questionnaire) are related to each other and how they predict the students' perceptions of their learning environment and course performance. By doing this, we will have a clear look at the relationships between general and context-specific goal strivings, both conceptually and with regard to data collecting strategy, and regarding their predictions on important outcomes. For this purpose, we obtained qualitative data on students' descriptions of the goals they tried to attain in the course in addition to commonly used survey measures of achievement goal orientations.

Our conceptualization of both – learning motivation and learning environment – derives from the achievement goal research that has contributed to the study of achievement-related behaviour and instructional practices (cf. Anderman, Austin, & Johnson, 2001; Urdan, 1997, 2004; Wolters & Gonzales, 2008). Despite the numerous different ways achievement-related goal strivings have been conceptualized and measured (e.g., DeShon & Gillespie, 2005), there seems to be a general distinction between two approaches (see Kaplan & Maehr, 2007; Urdan, 1997): one, that focuses on specific desired end-states in a given task or situation (*achievement goals*) and another, that focuses on more general orientations toward or approaches to achievement situations (*achievement goal orientations*). Our work follows the latter perspective by defining achievement goal orientations as personal dispositions in the form of generalized preferences for certain behaviors and outcomes in achievement-related contexts. That is, we view achievement goal orientations as motivational mind-sets through which students' interpret learning and achievement situations, and which are manifested in the types of goals, outcomes and activities students seek to attain or avoid (see Niemivirta, 2002a; Tuominen-Soini, Salmela-Aro, & Niemivirta, 2008).

Research shows that motivational orientations, achievement, and students' course evaluations are interrelated. Students' motivation is predictive of their evaluations of teaching (Greenwald & Gillmore, 1997; Bacon & Novotny, 2002; Pulkka & Niemivirta, 2013a; 2013b), achievement goals are associated with performance (Huang, 2012; Senko, Hulleman, & Harackiewicz, 2011) and preferences of instruction and teacher characteristics (Senko, Belmonte, & Yakhkind, 2012; Tapola & Niemivirta, 2008). Students' achievement goal orientations may affect student performance *as a function* of different pedagogical practices (e.g., Midgley, Kaplan, & Middleton, 2001; Pulkka & Niemivirta, 2013c; Senko, Durik, & Harackiewicz, 2008). In sum: Differently motivated students prefer different things in educational contexts and perceive learning and instruction in distinct ways.

However, studies that integrate these views are scarce, and most of the research examining the relations between student motivation and the learning environment seem to employ a rather unidirectional view on the relationship between the environment and the individual; the learning environment has mostly been assumed

to influence the motivation of individuals, not the other way around (e.g., Church, Elliot, & Gable, 2001; see Pulkka & Niemivirta, 2013a; Tapola & Niemivirta, 2008). Finally, since a majority of achievement goal research has used survey measures to assess students' goals and motivation, it has been suggested that the use of more diverse methodologies could provide new insight on the students' goal-related strivings (e.g., Brophy, 2005; Kaplan & Maehr, 2007). Our research contributes to these issues by combining qualitative and quantitative data and by emphasizing the role students' motivational orientations play in both students' performance and their perceptions of their learning environment.

## 1.1 Achievement goal orientations

Originally, two distinct orientations were discussed: mastery-focused orientation (the purposes of personal improvement based on an intrapersonal standard) versus performance-focused orientation (the purposes of demonstration of competence based on an interpersonal standard) (e.g., Ames & Archer, 1988; Dweck, 1992), but the research since has introduced several other classes of achievement goals. In this study, we examine five types of personal achievement goal orientations (Niemivirta, 2002a). *Mastery-intrinsic* goal orientation refers to the original operationalization of learning focus (learning goals or task involvement; cf. Dweck, 1986; Nicholls, 1984) while *mastery-extrinsic* goal orientation refers to an emphasis on external criteria for personal mastery, such as grades at school with an intrapersonal standard without any explicit reference to social comparison (Niemivirta, 2002a; Tuominen-Soini et al., 2008; see also Grant & Dweck, 2003: *outcome goals*). Two types of performance goal orientations are also distinguished: *performance-approach* and *performance-avoidance* goal orientations (Elliot & Harackiewicz, 1996; Middleton & Midgley, 1997; see also Skaalvik, 1997). Performance-approach orientation refers to the goals of demonstrating competence and outperforming others, while the performance-avoidance orientation refers to the goals of *avoiding* judgments or signs of incompetence. Finally, as students also hold goals in an achievement context that are not related to gaining or demonstrating competence, but rather focus on minimizing personal effort and avoiding academic challenges, we also include *work-avoidance orientation* in this study (Meece, Blumenfield, & Hoyle, 1988; Nicholls, Patashnick, & Nolen, 1985; Thorkildsen & Nicholls, 1998).

## 1.2 Outcomes and correlates of achievement goal orientations

Despite some inconsistencies in the findings of previous research, that mostly seem to reflect different operationalizations (Hulleman, Schrager, Bodmann, & Harackiewicz, 2010), we feel confident to make some generalizations on the correlates and consequences of different achievement goals and goals profiles (Kaplan

& Maehr, 2007; Urdan, 1997). Mastery orientation has mostly predicted positive outcomes, such as enjoyment of the class and learning, peer inclusion, interest, hope and pride (Daniels et al., 2009; Harackiewicz, Barron, Tauer, & Elliot, 2002; Pekrun, Elliot, & Maier, 2006; Polychroni, Hatzichristou, & Sideridis, 2012). Mastery-extrinsic orientation has been linked to positive outcomes, such as personal interest (Tapola, Veermans, & Niemivirta, 2013), higher self-esteem, effort and commitment, and lower ratings of academic withdrawal, but also to some negative outcomes, such as emotional exhaustion, stress, and fear of failure (Tuominen-Soini et al., 2008; Tuominen-Soini, Salmela-Aro, & Niemivirta, 2011). Performance-approach orientation has predicted pride, hope, and peer inclusion, but anxiety and peer conflict as well (Daniels et al., 2009; Pekrun et al., 2006, 2009; Polychroni et al., 2012), and it has been found to correlate with fear of failure, academic withdrawal, emotional exhaustion, and stress (Tuominen-Soini et al., 2008, 2011). Performance-avoidance orientation has been associated with anxiety, hopelessness, and shame (Pekrun et al., 2006) as well as peer conflict and it has also negatively predicted peer inclusion (Polychroni et al., 2012). Work-avoidance orientation has negatively predicted enjoyment of the class and interest (Harackiewicz, Barron, Tauer, & Elliot, 2002), and it has been linked to fear of failure, test anxiety, feelings of inadequacy, cynicism, and low self-esteem (Niemivirta, 2002a; Tuominen-Soini et al., 2008, 2011).

In line with this, but more specifically, research also suggests that students' achievement goal orientations are related to their course evaluations. The endorsement of mastery goals and performance-approach goals has positively predicted enjoyment of learning, while the opposite is true for the emphasis on performance-avoidance goals and work-avoidance goals (e.g., Ee, Wang, Koh, Tan, & Liu, 2009; Harackiewicz, Barron, Tauer, & Elliot, 2002; Pekrun et al., 2006). Mastery goal endorsement has predicted sports camp satisfaction (Hulleman, Durik, Schweigert, & Harackiewicz, 2008), overall course evaluations (Remedios & Lieberman, 2008), course satisfaction, and perceived quality of assessment practices (Pulkka & Niemivirta, 2013c). Furthermore, students' performance goals have predicted preferences for a teacher who presents clearly and provides cues for success, whereas mastery goals have predicted preferences for a teacher with topic expertise and who offers intellectual challenge (Senko et al., 2012). Finally, students oriented towards an increase in competence and mastery or towards normative performance and success were found to be most positive in their evaluations of the interestingness of the course, perceived quality of pedagogical materials, personal effort and attainment, and participation, when compared to students oriented towards avoidance of effort or displays of incompetence (Pulkka & Niemivirta, 2013a; 2013b).

With regard to students' performance, it seems that endorsement of performance-approach goals have predicted achievement more reliably than endorsement of mastery or learning goals (Senko et al., 2011), but other results have also been reported (e.g., Huang, 2012). Mastery goals have mostly been unrelated to achievement, but some studies have shown positive effects on performance outcomes (Bipp, Steinmayr, & Spinath, 2012; Finney, Pieper, & Barron, 2004; Hsieh,

Sullivan, & Guerra, 2007; Lau & Nie, 2008; Witkow & Fuligni, 2007). As noted above, an emphasis on performance-approach goals has usually been positively related to students' performance (e.g., Barron & Harackiewicz, 2003; Harackiewicz, Barron, Tauer, & Elliot, 2002; Harackiewicz, Durik, Barron, Linnenbrink-Garcia, & Tauer, 2008; Sideridis, 2005), but also null relations have been documented (e.g., Chan, 2008; Hsieh et al., 2007; Lau & Nie, 2008; for a review, see Linnenbrink-Garcia, Tyson, & Patall, 2008). Finally, lower performance has consistently been predicted by the endorsement of performance-avoidance goals (e.g., Bipp et al., 2012; Elliot & McGregor, 1999; Harackiewicz et al., 2008; Hsieh et al., 2007; Lau & Nie, 2008), and work-avoidance goals (Harackiewicz, Barron, Carter, Lehto, & Elliot, 1997; Harackiewicz, Barron, Tauer, & Elliot, 2002; Long, Monoi, Harper, Knoblauch, & Murphy, 2007).

## 1.3 Qualitative approach in achievement goal research

As noted above, the adequacy of different methods to measure motivation has been debated. Self-report scales are based on presupposed dimensions and preset wordings of items, thus perhaps omitting context-sensitive facts and meanings the participants might describe in their own words (e.g., Bembechat & Boulay, 2001; Brophy, 2005; Dowson & McInerney, 2001, 2003; Kaplan & Maehr, 2007). Brophy (2005) even argued that when based on more spontaneous reports (compared to survey measures), performance-goals in terms of social comparison would be a low-incidence phenomenon in natural learning contexts. Consequently, Fulmer, and Frijters (2009) suggested that the use of complementary methods might add to the reliability and interpretability of results, especially across various age groups. Studies that have combined different methodologies are infrequent, but some evidence shows that students' qualitatively generated goals do in fact correspond to survey measures (Harackiewicz et al., 1997; Veermans & Tapola, 2004).

Qualitative research has revealed that students' descriptions of their own goals include intriguingly varying patterns and frequencies of goals and combinations of goals. For example, some studies show that students spontaneous references to avoidance tendencies are common[1] ("to get it over with", applying the least amount of effort or merely getting the work done and no more), and that students who express clearly mastery-related goals (wider perspective of the value of learning and improvement) or compare their progress with other students form a minority (Anderson, Brubaker, Alleman-Brooks, & Duffy, 1985; Cox, 2009). Other studies, however, have identified more equal frequencies of varying goals. Harackiewicz and her colleagues (1997) noticed that most often students' open responses included references to mastery goals or both performance and mastery goals, whereas only a few students (7 % of their sample) mentioned performance goals only. Levy,

1 Cox (2009) noted that the purposes of doing only the minimal work required passing the grade was clear especially if the student felt that the course did not offer anything useful.

Kaplan, and Patrick (2004) found that roughly equally one-third of students indicated in their responses the endorsement of mastery goals, performance-approach goals, or performance-avoidance goals as the sole or relatively dominant tendency. Students have also spontaneously displayed goal preferences that are not related to achievement as such. Lemos (1996) found that students' statements indicated seven categories of goals of which three were related to achievement: learning goals, an evaluation goal that included both concerns for high grades and avoiding negative evaluations, and working goals that included goals of merely getting tasks or other work done (resembling work-avoidance goals). There was no reference to quality of learning, evaluations or achievement. Dowson and McInerney (2003; see also 2001) also identified three academic achievement goals amongst a host of others: mastery goals, performance goals and work-avoidance goals that students had mentioned in interviews or displayed in observed classroom events.

## 2. Present study

The purpose of this study was to examine how students' achievement goal orientations and qualitatively measured course-specific goals are related to each other and how they predict students' perceptions of their learning environment and course performance. To achieve this, we first identified adult students' goal orientation profiles and examined whether students' academic achievement and evaluations of learning environment varied as a function of those profiles. Then, we examined whether students' qualitatively measured course specific goals corresponded to their designated profile and whether they predicted students' evaluations of learning environment and academic achievement.

Much of the achievement goal research has followed a variable-centered approach (i.e., focusing mostly on correlations or predictive main effects between variables), which in part may overlook peoples' tendency to strive for or emphasize multiple goals simultaneously (although not necessarily so; see Barron and Harackiewicz, 2001). The person-centered approach adopted here implies that the learners can pursue several goals simultaneously (e.g., Harackiewicz, Barron, Pintrich et al., 2002; Niemivirta, 2002b), on differing levels and with different combinations, and that these distinct patterns may lead to different outcomes (cf. Pintrich, 2000). Therefore, in this study, individual differences in motivation are implicated by the different configurations of goal orientations. This provides a complementary view on students' motivational tendencies and how those influence students' achievement-related behavior and performance.

Second, and related to the above, our view emphasizes the role individual differences in motivation play in how the students perceive their learning environment. Students' perceptions of the learning environment are often assumed to influence individuals' motivation rather than vice versa, which implies that achievement situations are more or less similar to all students in terms of how they

are perceived (cf. James & Yates, 2007). In this study, we assume that students' achievement goal orientation profiles serve as motivational lenses through which the environment and instruction is perceived and interpreted, which suggests that the "same" environment could be perceived quite differently depending on the students' achievement goal orientations (cf. Lyke & Kelaher Young, 2006; Murdock & Miller, 2009; Tapola & Niemivirta, 2008).

Third, methodologically, our study complements current research by combining quantitative and qualitative data in analyzing what the students seek to attain in achievement contexts. As noted before, achievement goal research has mostly relied on survey measures. Those few qualitative studies available suggest that students' descriptions of their own goals in achievement-related contexts correspond to conceptualizations incorporated into survey measures, but also reveal other goals as well (Anderson, Brubaker, Alleman-Brooks, & Duffy, 1985; Cox, 2009; Harackiewicz et al., 1997). In this study, we wanted to examine the extent to which the students' self-described course goals corresponded to their achievement goal orientation profiles as extracted from the survey measure.

Fourth, these data allow us also to examine whether students' achievement goal orientation profiles and self-described goals function similarly in terms of predictions on the students' perceptions of the learning environment and actual performance. This contributes to the conceptual and theoretical discussion about the different levels of achievement-related strivings (and corresponding units of analysis) and their different functions. As we have pointed out, our view implies that achievement goal orientation profiles operate as a sort of generalized lens through which the students interpret their situation, and which thus influences – but does not dictate – what the students try to attain in the given situation and what sort of behaviors they choose to carry out. In contrast, more specific goals are construed in situ (but, as noted, partly as a function of the students' motivational mind-set, that is, the configurations of their achievement goal orientations), and might thus be stronger predictors of the actual behaviors.

Finally, the context of our study is somewhat special, as our sample came from the Finnish National Defence University (NDU), which provides higher education in the military field and trains officers for the Finnish Forces. The students are selected to the NDU based on prior academic achievement, performance in the national military service, and psychological and physiological screening. This provides us with an opportunity to explore whether the findings obtained with this particular sample correspond to previous findings on more heterogeneous populations.

As to the goal orientation profiles, based on prior research (see Pulkka & Niemivirta, 2013a; 2013b; Tuominen-Soini et al., 2008; 2011; Tuominen-Soini, Salmela-Aro, & Niemivirta, 2012), we expected to identify (a) a group with an emphasis on learning new things and gaining competence, (b) a group with an emphasis on avoidance of effort above other goals, (c) a group with a combined emphasis of mastery- and performance goal orientations, and (d) a group with no clear goal preferences.

Previous research suggests that the emphasis on personal improvement and mastery is adaptive in terms of long-term motivation and affect, while the focus on avoidance of effort or judgements of incompetence is maladaptive. If we identify the expected groups, we will assume students' evaluations of their learning environment to vary as a function of their goal orientation profile, so that mastery-focused students were most positive in their evaluations, especially when compared to avoidance-focused students (e.g., Pulkka & Niemivirta, 2013a, 2013b; Tapola & Niemivirta, 2008). This is to be expected, as mastery-focused learners are most likely to view instruction and feedback as opportunities to learn or as information necessary for developing mastery (see e.g., Senko & Miles, 2008 and Senko et al., 2008 on the functions of mastery goal preferences). Achievement-related challenges can also be perceived as threats, if one is particularly concerned with failure, as it seems to be the case with students emphasizing both mastery- and performance-related goals and outcomes. According to previous studies, these students do acknowledge the importance of mastery and value learning and achievement, but they also seem sensitive to possible failures and even tend to give up more easily (when compared to mastery-focused students) when facing challenges (Tuominen-Soini et al., 2011). Consequently, it could be expected that students with such a profile would also be quite positive in their evaluations of the learning environment, but perhaps more cautious in their view of their own effort and participation. On the other hand, avoidance-focused students, who seem to have no particular interest in gaining or demonstrating competence, may display a negative and unenthusiastic attitude towards any instructional practices that require effort.

Finally, with regard to students' descriptions of their course-specific goals, we expected their responses to reflect similar classes of goals as implied by the dimensions of goal orientations, namely learning or mastery, success (both absolute and relative), and avoidance. Consequently, we also expected course-specific goals to be associated with achievement goal orientations as well as with course evaluations, so that (a) adaptive and maladaptive profiles were predictive of corresponding course goals, and (b) adaptive course goals (e.g., mastery) were predictive of more positive course evaluations and maladaptive course goals (e.g., avoidance) were predictive of less positive course evaluations.

# 3. Method

## 3.1 Participants and procedure

Our sample consisted of 88 (85 male, three female; aged 20 to 23 years) second-year students at the Finnish National Defence University. The annual intake is approximately 140 students, and usually approximately 3–6 % of the students are female. Of the whole cohort, then, all students who had this particular course included in their study programme participated in the study.

The course phase in which the data were collected was conducted in lecture format and included an examination that was basically a multiple-choice test.

Students' achievement goal orientations were measured at the beginning of the course. Several days after this, the students completed a short questionnaire, in which they were instructed to describe their course goals in their own words. At the end of the lecture period, but right before the examination, the students completed the course evaluation sheet, and after the examination the students evaluated the quality of assessment practices.

## 3.2 Measures

### 3.2.1 Achievement goal orientations

We used a questionnaire that includes five types of achievement goal orientations (Niemivirta, 2002a): *mastery-intrinsic orientation* (three items, e.g., "To acquire new knowledge is an important goal for me in my studies"), *mastery-extrinsic orientation* (three items, e.g., "Getting good grades is important for me"), *performance-approach orientation* (three items, e.g., "An important goal for me in my studies is to do better than other students"), *performance-avoidance orientation* (three items, e.g., "It is important for me not to fail in front of other students"), and *work-avoidance orientation* (three items, e.g., "I try to get away with as little effort as possible in my studies"). The instrument has been used in several studies showing high reliability and validity (Niemivirta, 2002a; 2002c; Pulkka & Niemivirta, 2013a; 2013b; 2013c; Tuominen-Soini et al., 2008, 2011, 2012; Tapola et al., 2013). The students rated each statement on a seven-point Likert-scale (1 = *not true at all*, 7 = *very true*).

### 3.2.2 Course-specific goals

The students were administered an open-ended format questionnaire with the following questions: (a) "What kind of goals do you have for this course?" and (b) "How do you know that you have achieved your goals and/or what kind of criteria do you use to decide this?".

### 3.2.3 Course evaluations

The students completed the *Evaluation of Learning Environment-questionnaire* (ELEQ; Pulkka, & Niemivirta, 2013a; 2013b) assessing instructional practices and the students' own course-related activities. The scales included in this questionnaire represent aspects of learning environment, instructional practices and student activities that have particular relevance from the perspective student moti-

vation (cf. Ames, 1992; Maehr, & Midgley, 1991; Pintrich, 2003). The scales were: *quality of teaching methods* (four items, e.g., "In my opinion, the teaching methods supported an understanding of the content"), *quality of pedagogical materials* (three items, e.g., " The pedagogical materials (textbooks and such) supported my studying well"), *quality of assessment methods* (three items, e.g., "The assessment (examination, test or such) supported my learning"), *satisfaction with the course* (three items, e.g., "All in all, I am satisfied with the course"), *interestingness* (four items, e.g., "The substance of the course was interesting for me"), *effort and attainment* (three items, e.g., "Considering my own work during the course I am satisfied"), and *participation* (two items, e.g., "I participated eagerly in discussions"). The students rated each item on a seven-point Likert-scale (1 = *not true at all*, 7 = *very true*).

### 3.2.4 Academic achievement

Students' scores from the examination ($M$ = 58.06, $SD$ = 5.60) were obtained from departmental records. The range of the scoring scale in the examination was from 0 to 74.

## 3.3 Data analysis

Due to the small sample size, we used partial least squares (PLS) modeling (e.g. Chin, 1998; Chin & Newsted, 1999) instead of covariance-based confirmatory factor analysis to test the structural validity and composite reliability of our measures. For this, we used a path-weighing scheme for estimating inner weights and a bootstrapping procedure for estimating parameter significance as implemented in the SmartPLS modeling software (Ringle, Wende, & Will, 2005).

As to the actual research questions, first, latent class clustering analysis (LCCA; cf. Vermunt & Magidson, 2002) with the BIC-criterion was used to form groups of students based on their achievement goal orientation profiles. Second, between-group differences in the achievement and course evaluations were examined by conducting a series of ANOVAs based on goal orientation group memberships. Third, regarding the qualitative data, each type of achievement goals was coded by three raters as present (1) or absent (0) in students' responses. This process is described in more detail in the section 4.4 of this study. For estimating interrater reliability, we calculated Randolph's free-marginal multirater kappa (multirater $\kappa_{free}$; cutoff value > .7; cf. Randolph, 2005; Warrens, 2010) for the coding from three raters for each individual goal category. This is a free-marginal index, which is recommended (e.g., Brennan & Prediger, 1981) when raters are not forced to assign a certain number of cases to each category (which may result in unequal frequencies), as is the case in our study. Fourth, the absent/present frequencies of each type of course goal were cross-tabulated with goal orientation group memberships

to establish the patterning of achievement goal orientation profiles and course-specific goals. Finally, the associations between students' course goals and evaluations of learning environment were examined with point-biserial correlations. In this stage of the analysis, the codes for individual student's course goals in each achievement goal category were treated as a dummy variable.

# 4. Results

## 4.1 Structural validity and reliability

The small number of missing values was imputed using the expectation maximisation (EM) estimation (PASW 18). A majority of the missing values consisted of one missing item per case; that is, at maximum 1.1 % of values per item. The factorial structure and internal consistencies indicated good structural validity for both goal orientation and course evaluation scales. Descriptive statistics, internal consistencies (composite reliability estimates), and zero-order correlations are reported in Table 1.

## 4.2 Achievement goal orientation profiles and grouping

Results from the LCCA indicated that, according to the BIC-criterion, the solution with four groups fit the data best. Thus, four homogenous groups of students were identified based on their achievement goal orientation profiles.

According to the mean differences in goal orientations (see Table 2) and the standardized mean score profiles (see Figure 1), the groups were labelled in line with prior research (e.g., Tuominen-Soini et al., 2011) as mastery-oriented ($n$ = 10), success-oriented ($n$ = 24), avoidance-oriented ($n$ = 18), and indifferent ($n$ = 36).

The mastery-oriented students emphasized both mastery goal orientations, yet they scored relatively low on both performance goal orientations and work-avoidance goal orientation. These students mainly focused on personal mastery, learning and understanding, and also recognized absolute success and good grades as important goals.

The success-oriented students scored relatively high on all orientations, with some emphasis on mastery-extrinsic and performance-approach goal orientations. This indicated that they strived for absolute and relative success, but were also concerned about demonstrating relative ability and avoiding failure.

The indifferent students' scores were closest to the sample averages in all dimensions so they displayed no relative emphasis of any goal orientations. Indifferent students are sort of non-committed learners, with little distinction in any personal goals.

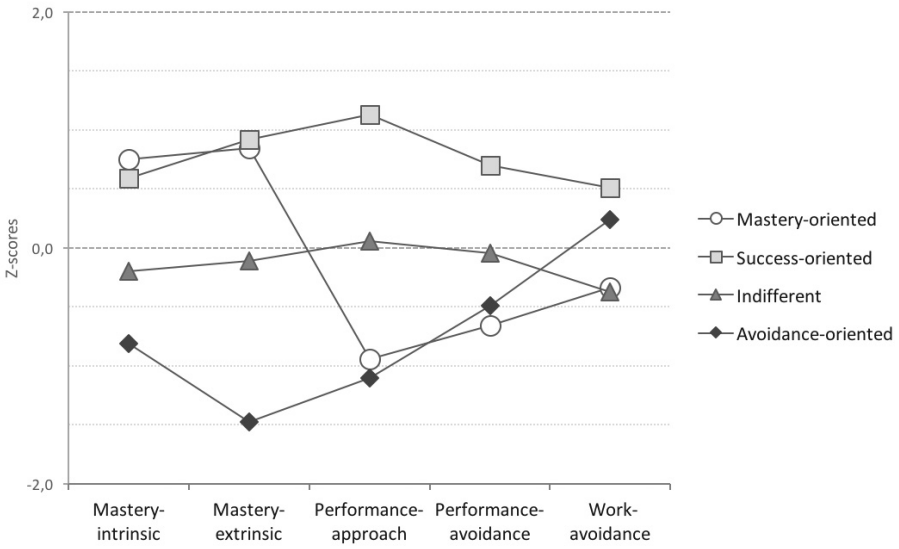
Table 1: Descriptive statistics, composite reliability estimates, and zero-order correlations

| Variable | *M* | *SD* | Crel | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Mastery-intrinsic orientation | 5.22 | 1.09 | .92 | – | | | | | | | | | | | |
| 2. Mastery-extrinsic orientation | 4.96 | 1.15 | .92 | .59*** | – | | | | | | | | | | |
| 3. Performance-approach orientation | 4.24 | 1.17 | .85 | .30** | .64*** | – | | | | | | | | | |
| 4. Performance-avoidance orientation | 3.39 | 1.11 | .86 | .22 | .36** | .63*** | – | | | | | | | | |
| 5. Work-avoidance orientation | 3.60 | 1.30 | .90 | -.25* | -.08 | .11 | .20* | – | | | | | | | |
| 6. Quality of teaching methods | 4.27 | 1.07 | .94 | .34*** | .32** | .25** | .10 | -.07 | – | | | | | | |
| 7. Quality of pedagogical materials | 4.23 | 1.15 | .95 | .34*** | .21* | .12 | .09 | -.30*** | .51*** | – | | | | | |
| 8. Quality of assessment methods | 4.66 | 1.27 | .93 | .48*** | .40*** | .40*** | .27*** | -.22** | .59*** | .41*** | – | | | | |
| 9. Satisfaction with the course | 4.24 | 1.03 | .92 | .31*** | .22* | .18 | .04 | -.23** | .66*** | .72*** | .47*** | – | | | |
| 10. Interestingness | 4.46 | 1.04 | .93 | .20 | .12 | .15 | .03 | -.11 | .53*** | .59*** | .39*** | .69*** | – | | |
| 11. Effort and attainment | 4.64 | .98 | .89 | .43*** | .38*** | .16 | .08 | -.22** | .58*** | .64*** | .46*** | .70*** | .63*** | – | |
| 12. Participation | 3.88 | 1.14 | .95 | .32*** | .23** | .19 | .05 | -.13 | .45*** | .45*** | .32** | .54*** | .55*** | .58*** | – |

*Note*. Crel = Composite reliability estimate

*$p < .05$, **$p < .01$, ***$p < .001$

Figure 1: Students' standardized mean scores on achievement goal orientation scales as a function of group membership




The avoidance-oriented students scored relatively low on both mastery goal orientations and high on work-avoidance goal orientation. These students were merely focusing on minimizing their effort, and avoiding challenges and failure.

Prior studies employing the same goal orientation measures (Tuominen-Soini et al., 2008; 2011; 2012) have shown quite similar profiles. The mean differences in achievement goal orientations between goal orientation groups are presented in Table 2.

Table 2: Mean differences in goal orientations between goal orientation groups

| Orientation group | Mastery-oriented $n$ = 10 | | Success-oriented $n$ = 24 | | Indifferent $n$ = 36 | | Avoidance-oriented $n$ = 18 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Scale | *M* | *SD* | *M* | *SD* | *M* | *SD* | *M* | *SD* | $\chi^2$ (df = 3) | p | $\eta^2$ |
| Mastery-intrinsic orientation | $6.03^{a}$ | .79 | $5.86^{a}$ | .84 | $5.00^{b}$ | .85 | $4.33^{b}$ | 1.18 | 28.75 | <.001 | .33 |
| Mastery-extrinsic orientation | $5.93^{a}$ | .49 | $6.01^{a}$ | .55 | 4.83 | .51 | 3.26 | .69 | 68.20 | <.001 | .78 |
| Performance-approach orientation | $3.13^{a}$ | .53 | 5.57 | .63 | 4.31 | .63 | $2.94^{a}$ | .73 | 65.11 | <.001 | .74 |
| Performance-avoidance orientation | $2.67^{ab}$ | 1.28 | 4.17 | 1.02 | $3.34^{ac}$ | .85 | $2.85^{bc}$ | 1.01 | 18.80 | <.001 | .21 |
| Work-avoidance orientation | $3.17^{abc}$ | 1.23 | $4.26^{ad}$ | 1.30 | $3.12^{be}$ | 1.09 | $3.91^{cde}$ | 1.32 | 13.95 | .003 | .16 |

*Note*. Group means with the same superscript do not differ from each other at $p < .05$.

## 4.3 Between-group differences in course evaluations and academic achievement

The results of the series of non-parametric ANOVAs (Kruskall Wallis test, see Table 3) showed that the goal orientation groups differed from each other their evaluations of teaching methods, quality of pedagogical materials, quality of assessment methods, satisfaction with the course, effort and attainment, and participation. In most cases, mastery-oriented and success-oriented students tended to give higher ratings than the other two groups.

Pairwise comparisons of the scores indicated that the mastery-oriented students gave the most positive evaluations of the quality of pedagogical materials and effort and attainment, followed by indifferent and success-oriented students, and that these groups mostly differed significantly from the avoidance-oriented group. Concerning students' evaluations of the quality of teaching methods, quality of assessment methods, and participation, the success-oriented students gave most positive evaluations, followed by mastery-oriented and indifferent students, and significant differences were again observed when compared to avoidance-oriented students. With regard to satisfaction with the course, the indifferent students scored highest, followed by the success-oriented students, and these two groups differed significantly from the avoidance-oriented students. There were no significant group differences on students' ratings of the interestingness of the course. With regard to the scores from the examination, the success-oriented students scored highest and differed marginally ($p$ = .063) from the mastery-oriented students, who, in turn, scored lowest.

Table 3: Mean differences in evaluations of the learning environment between goal orientation groups

| Orientation group | Mastery-oriented $n$ = 10 | | Success-oriented $n$ = 24 | | Indifferent $n$ = 36 | | Avoidance-oriented $n$ = 18 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Scale | *M* | *SD* | *M* | *SD* | *M* | *SD* | *M* | *SD* | $\chi^2$ (df=3) | *p* | $\eta^2$ |
| Quality of teaching methods | 4.53 | 1.28 | $4.64^{a}$ | .76 | $4.32^{\blacklozenge}$ | 1.06 | $3.56^{a\blacklozenge}$ | 1.04 | 10.33 | .016 | .12 |
| Quality of pedagogical materials | $4.90^{a}$ | 1.14 | 4.08 | 1.16 | $4.50^{b}$ | 1.05 | $3.52^{ab}$ | 1.02 | 11.74 | .008 | .13 |
| Quality of assessment methods | 4.56 | 1.34 | $5.29^{a}$ | 1.02 | 4.56 | 1.20 | $4.00^{a}$ | 1.37 | 11.05 | .011 | .13 |
| Satisfaction with the course | 4.43 | .59 | $4.30^{\blacklozenge}$ | .79 | $4.50^{a}$ | 1.09 | $3.52^{a\blacklozenge}$ | 1.07 | 12.23 | .007 | .14 |
| Interestingness | 4.67 | .98 | 4.53 | .98 | 4.61 | 1.07 | 3.94 | .98 | 4.81 | .186 | .06 |
| Effort and attainment | $5.23^{a}$ | .86 | $4.71^{b}$ | .78 | $4.88^{c}$ | .89 | $3.72^{abc}$ | .91 | 19.55 | .000 | .22 |
| Participation | 4.00 | 1.58 | $4.27^{a}$ | .91 | $3.96^{\blacklozenge}$ | 1.12 | $3.17^{a\blacklozenge}$ | .91 | 10.86 | .013 | .12 |
| Examination ($n$ = 85) | $54.61^{\blacklozenge}$ | 4.26 | $59.83^{\blacklozenge}$ | 5.22 | 58.57 | 5.68 | 56.32 | 5.72 | 7.31 | .063 | .08 |

*Note*. Group means with the same superscript differ from each other at $p < .05$, except $^{\blacklozenge}$ = $p < .1$.

## 4.4 Categories of students' self-defined course-specific achievement goals

Students' written responses were coded for the presence of the five goal orientation dimensions used in this study: mastery-intrinsic, mastery-extrinsic, performance-approach, performance-avoidance, and work-avoidance. The presence of a goal was indicated by an explicit utterance of or a reference to the content of the relevant achievement goal orientation.

Responses were coded independently by three coders with specific expertise in achievement goal research. Initially, the comparison of coding of performance-avoidance goals indicated somewhat more disagreement than was observed concerning the other categories. This disagreement between coders was mostly resolved by discussion between raters: varying interpretations concerned students' references to "safe conduct" or "safety" at large; the safe conduct or safety of trainees in firing exercises is the utmost imperative. Thus, in this context and especially in this course, not to "pass safely" or not to "perform safely" would be an indication of failure in terms disqualification or displayed incompetence. Interrater reliabilities for final codings indicated high agreement among raters for all goal categories (see Table 4).

Based on our coding, the highest frequencies were observed in responses displaying mastery-intrinsic goals (36.9 % of coded responses mentioned this goal, for example: "I want to deepen my knowledge and skills in the use of weapons as well as to develop in all the fields"), followed by mastery-extrinsic goals (6.9 %, for example: "[My goal is] To qualify with excellent grades (4 to 5)"). The other goal categories were mentioned clearly less frequently: performance-avoidance goals (4.4 %, for example: "I don't have to retake the tests"), and work-avoidance goals (5.6 %, for example: "I want to reach adequate level, hopefully without stress"). Only one answer displayed performance-approach goals: "[I know that I've achieved my goal] ... by comparing my competence and knowledge to other students ...").

In addition to the predetermined goal categories, many answers included utterances that included aims of passing the professional trial to qualify or more specifically to gain all the qualifications for working career, and this goal was mentioned paralleling the other goals or sometimes as an independent goal. Indicative quotas are for example "I want to get all the qualifications included in the course", "I want to have the qualifications", "All the required qualification for working life ...", and "All the qualification from the course and practice for working career". This most frequently mentioned goal category was labeled "qualification goals" and it consists of contents that can be interpreted in both terms of instrumental motivation and future time perspective (e.g., Husman & Lens, 1999; Peetsma & van der Veen, 2011). Based on this, we also coded responses for the category of *qualification goals* (45.6 %).

Frequency distribution of goals mentioned in students' responses and interrater reliabilities are presented in Table 4. In sum, qualification goals and mastery-intrinsic goals were the most frequent to be mentioned in students' responses.

Consequently, it seems that the endorsement of other goals, especially performance-approach goals, were not very apparent in this course.

Table 4: Frequency distribution of goals mentioned in students' responses

| Goal mentioned | *n* | $\kappa_{free}$ |
|---|---|---|
| Mastery-intrinsic | 59 | .79 |
| Mastery-extrinsic | 11 | .90 |
| Performance-approach | 1 | .98 |
| Performance-avoidance | 7 | .92 |
| Work-avoidance | 9 | .97 |
| Qualification goal | 73 | .92 |
| Total | 160 | |

*Note*. $\kappa_{free}$ = Randolph's free rater kappa.

Regarding recurring combinations of certain types of goals mentioned by the same student, certain multiple goal responses seem to emerge. First, the most common ($n$ = 40) was a combination of mastery-intrinsic and qualification goals. Second, clearly fewer, that is only nine students, displayed combination of mastery-intrinsic, mastery-extrinsic and qualification goals, or mastery-extrinsic and qualification goals. Third, equally few students ($n$ = 9) displayed a combination of performance-avoidance, work-avoidance, and qualification goals.

With regard to mentioning only one goal, solely mastery-intrinsic goals were mentioned by very few students ($n$ = 5), but solely qualification goals were mentioned more often, namely by 12 students.

Outside of these fell responses that included a more mixed or even contradicting combinations, for example mastery-intrinsic and performance-avoidance goals in the same answers. These mixed combinations were usually displayed by only single or occasionally by two students.

## 4.5 Course-specific goals and general goal orientation profiles

Results from the crosstabulations of categories of students' own reports of course goals and goal orientation profiles indicated that avoidance-oriented students mentioned mastery-intrinsic goals less frequently (adj.std.res = -1.99) and that success-oriented students mentioned mastery-intrinsic goals almost significantly (adj.std. res = 1.91) more frequently than could be expected by chance. The distribution of other goal-related responses was equal between goal orientation groups.

### 4.6 Associations between course-specific goals and course evaluations and performance

Based on the point-biserial correlations between each goal category (with a frequency over 4) and evaluations of learning environment and performance (see Table 5), it seems that the presence of mastery-intrinsic goals, mastery-extrinsic goals, and work-avoidance goals were associated with students' perceptions of instruction and studying. The presence of mastery-intrinsic goals was associated with higher ratings of satisfaction with the course, interestingness, effort and attainment, and participation, and the presence of mastery-extrinsic goals was associated with higher ratings of the perceived quality of teaching methods and pedagogical materials. In contrast, the presence of work-avoidance goals was associated with lower ratings of satisfaction with the course and interestingness. Finally, there were no significant results concerning performance in the examination

Table 5: Point-biserial correlations between self-reported course goals and evaluation of learning environment scales

| | Goals mentioned in students' responses | | | | | |
|---|---|---|---|---|---|---|
| Scale | Mastery-intrinsic | Mastery-extrinsic | Performance-approach | Performance-avoidance | Work-avoidance | Qualification |
| Quality of teaching methods | .16 | .22* | nr | -.10 | -.19 | .07 |
| Quality of pedagogical materials | .19 | .25* | nr | .03 | -.11 | -.01 |
| Quality of assessment methods | .19 | .11 | nr | .02 | -.09 | -.02 |
| Satisfaction with the course | .33** | .19 | nr | .04 | -.24* | -.02 |
| Interestingness | .42*** | .13 | nr | -.03 | -.27* | -.07 |
| Effort and attainment | .43** | .12 | nr | -.15 | -.17 | -.07 |
| Participation | .29** | .17 | nr | -.09 | -.18 | -.08 |
| Examination | -.13 | .01 | nr | -.06 | -.08 | -.07 |

*Note. nr* = Correlations concerning performance-approach goals mentioned in students responses were not reported because of a very low frequency.

*$p < .05$, **$p < .01$, ***$p < .001$

## 5. Discussion

In this study, we examined the associations between adult students' achievement goal orientation profiles, course evaluations, performance, and qualitatively measured course goals. Based on distinct achievement goal orientation profiles, we identified four homogenous groups, mastery-oriented, success-oriented, indifferent, and avoidance-oriented, respectively. Students' open answers displayed expected goal

orientation dimension, but also included more instrumental goal references related to our study context. There was little congruence between students' course-specific goals and their goal orientation profiles. The goal orientation groups differed from each other in their evaluations of many aspects of learning and instruction and, in turn, the students' course goals were also associated with their course evaluations in a (somewhat) parallel way. In sum, our results are consistent with prior research in some respects, but also offer important new insights.

To start with, it is to be noted that the achievement goal orientation profiles and relative group sizes in this study were very similar to those obtained in our previous studies on adult students (Pulkka & Niemivirta, 2013a; 2013b) and other studies on secondary school students (Tuominen-Soini et al., 2008; 2011; 2012). This indicates that despite the differences in age and educational context, comparable motivational profiles can be identified.

With regard to the incidence and contents of our qualitative assessment of course goals, it seems that not all the categories of goals are spontaneously reported with equal frequency (e.g., Brophy, 2005). Interestingly, students' responses lacked almost completely any statements related to social comparison or relative performance, whereas statements reflecting mastery-intrinsic goals and the attainment of qualifications were very common. It is possible, that the absence of performance goals in students' descriptions represents the evaluation environment of the course, where the attainment of qualification depended strictly on personal success: Every student is expected to qualify on a set level and thus, the other students' performance is of no relevance. This might also partially explain the unexpected frequency of the qualification goal, which was not part of our a priori classification of goals. This might reflect the perceived instrumentality of a successful completion of the course. In other words, it is likely that the students adopted qualification as an important higher-order goal due to its salience as a valued and rewarding outcome of the course. This implies that instrumental motivation and representations of future career and forthcoming work assignments are transformed into students' goal endorsement (Husman & Lens, 1999; Miller & Brickman, 2004; Peetsma & van der Veen, 2011), even though in the questionnaire they were primed to describe their achievement goals in situ.

Students' responses also indicated endorsement of multiple goals and these configurations somewhat matched prior research: adaptive and maladaptive goals were usually not mentioned in the same response. Also, interestingly, responses including mastery goals only were quite rare. It would seem that as the students' answers including qualification goals did not include any references to grades or social comparison, and as the two types of goal-related references (i.e. qualification and mastery) were often mentioned by same students (see above), the qualification goals may, after a fashion, represent higher hierarchy of a mastery goal endorsement.

Regarding relations between general goal orientations and qualitatively generated course-specific goal strivings, we found little differences in how students with various goal orientation profiles described their own course-related goals and crite-

ria. The avoidance-oriented students displayed less mastery-intrinsic goal endorsement and the success-oriented students displayed slightly more mastery-intrinsic goal endorsement when compared to other groups. This result seemingly converges to prior findings in a sense that quantitative and qualitative data yield somewhat corresponding results (cf. Harackiewicz et al., 1997; Veermans & Tapola, 2004). However, as the distribution of goal-related responses was mostly equal across goal orientation groups, it seems that such differences were hard to bring to the fore or were simply not present in our study context.

Concerning relations between goal orientations and course evaluations, our results showed, first, that there were clearly differences in course evaluations given by students with distinct achievement goal orientation profiles. These differences matched our assumptions as mastery-oriented and success-oriented students were most positive in their evaluations, which are taken to indicate both more positive experiences of and more positive standpoint on learning and studying in this course. Similarly, as the indifferent students and avoidance-oriented students gave consistently less positive evaluations, their experiences were poorer, and their attitude towards the instruction and activities of this course was more maladaptive. Second, students' qualitatively generated course-specific achievement goals were also associated with their course evaluations in a theoretically conceivable way: Endorsement of mastery goals, in forms of both personal development with self-set criteria and success with extrinsic criteria, was associated with more positive course evaluations. Correspondingly, endorsement of work-avoidance goals, that is, purposes of avoiding effort and challenge was associated with less positive evaluations. In sum, these findings converge with previous research showing that, in generic terms, personal emphasis on mastery is associated with positive experiences and outcomes, and that an emphasis on the avoidance of failure is associated with an inferior stance to achievement situations in learning contexts (e.g., Anderman & Wolters, 2006; Pulkka & Niemivirta, 2013a; 2013b). In a way, this demonstrates the interdependence of the general achievement goal orientations based on a survey measure, and situational goals measured with more spontaneous open-ended questionnaire. First, the profiles explained some of the variation in course-specific goals, and second, these two levels of descriptions of achievement-related strivings were clearly having equal effects on perceptions of learning and studying.

As to the student performance, we found no associations between course-specific goals and performance. With regard to goal orientation profiles, our results showed that the success-oriented students scored highest and slightly better than the mastery-oriented students. This can perhaps be explained by the nature of the examination. Based on what was known of this test (strictly structured and focused on the repetition of knowledge), it was assumed to require surface processing and thus, it might be expected to benefit those with an emphasis on performance-approach orientation (assumedly endorsing surficial approach) when contrasted to mastery orientation (assumedly endorsing deep approach) (Harackiewicz, Barron, Pintrich et al., 2002; Senko & Miles, 2008; Wolters, 2004). However, as our weak results may be indicating, such a differential hypothesis is not well sup-

ported by research (e.g., Senko et al., 2011; Senko & Miles, 2008), and it is also known that both mastery- and performance orientation have been found to be related to both deep and surface learning strategies (e.g., Diseth, 2011; Koopman, den Brok, Beijaard, & Teune, 2011). All in all, this goes beyond our data, though it is clearly a matter that needs to be addressed in future research (cf. Senko, Hama, & Belmonte, 2013).

The relationships revealed in this study are linked to the discussion of concepts of achievement goal research. As mentioned in the introduction, the achievement goal research includes two distinct yet intertwined perspectives: *achievement goal orientations* contrasted to more situation-specific *achievement goals*. Kaplan & Maehr (2007) discuss this issue by stating that although goal orientations were originally described as associated with action in *certain achievement situations* or tasks (situated orientations), they were *also* conceived in the early research as more *enduring dispositions* towards engagement. In a way, this is demonstrated in our results as (a) we observed theoretically relevant effects by the general achievement goal orientations, (b) these orientations were associated (albeit only slightly) with course specific goals, which (c) had in turn similar effects on the same outcomes. Based on this, it seems that generalized achievement goal orientations are related to students' situation-specific achievement goals and perceptions of learning environment, but students can also describe their situation-specific goals with different focus, and yet these situated goals are also predictive of the subsequent perceptions in a parallel way.

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